

EOSDIS IV&V Technical Analysis Memorandum (TAM)

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From: EOSDIS IV&V Team

Subject: Qualitative Trace Analysis of the April 18, 1997 RTM Requirements Baseline

Deliverable: 0802B.6 RTM Qualitative Trace Analysis TAM

1. *Summary*

This TAM presents the results of a qualitative analysis of the ECS April 18, 1997 RTM Requirements Baseline. A quantitative analysis of this Baseline was submitted (TAM-08-021-05/5/97).

This qualitative analysis assessed correctness and completeness of the traces of Release B SCDO and FOS requirements, and Releases B0 and B1 SCDO requirements. Traces between Level 3 (L3), Requirements-by-Release (RBR) and Level 4 (L4) requirements were assessed for Release B. L4-to-RBR traces were assessed for Releases B, B0 and B1. Based on the results of this qualitative analysis, IV&V generated counts of the number of traces having problems (trace issues). Details of the analysis are given in Attachments A-1 through C-2.

The analysis identified 50 Mission Critical Release B RBR requirements with trace issues (See Attachment A-2), with 39 in the FOS segment (19 of these FOS RBRs have No Valid traces). Immediate action is essential to resolve the Mission Critical requirements trace issues. A summary of the overall trace issues is provided in Exhibit 1-1.

| Release | RBR-to-L3 Trace Issues | RBR-to-L4 Trace Issues | L4-to-RBR Trace Issues |
|---------|---------------------------|---------------------------|---------------------------|
| B | 1 % | 8 % | 2 % |
| B0 | No RBRs Available | No RBRs Available | 4 % |
| B1 | No RBRs Available | No RBRs Available | 3 % |

EXHIBIT 1-1: Percent of Requirements with Trace Issues.

Our recommendations are:

- Complete allocation of RBRs to Releases B0 and B1.
- Correct Release B, B0 and B1 L3, RBR and L4 trace issues identified in this TAM.
- Immediate action to resolve the Release B Mission Critical RBR trace issues is strongly recommended.

2. *Context*

2.1 *Scope*

This qualitative analysis assessed trace correctness and completeness of Release B SCDO and FOS requirements; and Releases B0 and B1 SCDO requirements. Traces between L3, RBR and L4 requirements were assessed for Release B. L4-to-RBR traces were assessed for Releases B, B0 and B1.

This analysis provides a qualitative assessment of the traces between L3, RBR and L4 requirements in the April 18, 1997 RTM Requirements Baseline. Trace issues reported in previous TAMs were checked to determine if they have been corrected. The following information sources were used in the analysis:

1. RTM Requirements Baseline (April 18, 1997).
2. Functional and Performance Requirements Specification for the EOSDIS Core System, Revision A, June 2, 1994, through CH-41 (Feb. 7, 1997).
3. EOSDIS-IVV-TAM-08-020-04/14/97, Qualitative Trace Analysis of the March 14, 1997 RTM Requirements Baseline.
4. EOSDIS-IVV-TAM-08-021-05/5/97, Task 8 Monthly Metrics Report - April.

2.2 Analysis Methodology

Trace issues are categorized by severity of impact as follows:

- **No Valid trace:** No RTM trace (or an invalid trace) was provided for an RBR or L4 (Severity = Major).
- **Incomplete trace:** The trace(s) provided are valid, but one or more additional traces are needed to satisfy the requirement, or a release identification (e.g., B, B0) is missing (Severity = Major or Moderate).
- **Questionable trace:** One or more traces specified for the requirement are not applicable (Severity = Minor).

Based on discussions with HITS, the following information/assumptions were used to resolve issues:

- Requirements interpretation text provided in the current RTM Requirements Baseline.
- Requirements identified as procedural do not need traces.
- 'Derived' L4 requirements may not have traces to RBRs.

3. Discussion

The following sections include details pertaining to trace issues identified during the analysis, as well as summaries of additional trace issues not represented in the attachments. Detailed results from the qualitative RBR-to-L3, RBR-to-L4 and L4-to-RBR trace analysis performed for Releases B, B0 and B1 are summarized in Attachments A-1 through C-2. The Mission Criticality of the requirements with trace issues is identified in Attachment A-2.

3.1 RBR-to-L3 Traceability Issues

A summary of RBR-to-L3 requirements trace issues follows. Details are presented in Attachment A-1.

3.1.1 Release B

1 % (12 of 1,224) of the Release B SCDO and FOS RBRs have no traces to L3 requirements: DADS0472#B, EOC-8372#B, EOSD1015#B, PGS-0457#B, FOS-1020#B, FOS-1030#B, FOS-1040#B, FOS-1050#B, FOS-1060#B, FOS-1070#B, FOS-1080#B and FOS-1090#B. This is an increase of 1 trace issue since the last analysis.

3.1.2 Release B0

RTM Release B0 RBRs are not identified in this requirements baseline.

3.1.3 Release B1

RTM Release B1 RBRs are not identified in this requirements baseline.

3.2 RBR-to-L4 Traceability Issues

A summary of RBR-to-L4 requirements trace issues follows. Details are presented in Attachments A-1 and A-2.

3.2.1 Release B

Prior to this review, 8 % (96 of 1,204) of the Release B RBRs had RBR-to-L4 trace issues. During this review, 17 of these trace issues were verified as resolved and 20 new trace issues were identified.

Currently 8 % (99 of 1,204) of the Release B RBRs have RBR-to-L4 trace issues: 6 in EOSD, 9 in CSMS, 26 in SDPS, and 58 in the FOS subsystems (39 are FOS Mission Critical).

3.2.2 Release B0

RTM Release B0 RBRs are not identified in this requirements baseline.

3.2.4 Release B1

RTM Release B1 RBRs are not identified in this requirements baseline.

3.3 L4-to-RBR Traceability Issues

A summary of L4-to-RBR trace issues follows. Details are presented in Attachments A-3, A-4, B-1, B-2, C-1 and C-2.

3.3.1 Release B

Prior to this review, 1 % (14 of 944) of the Release B L4s had L4-to-RBR trace issues associated with them. During this review, 1 of these trace issues were verified as resolved and 3 new trace issues were identified.

In this baseline, 909 Release B L4 Requirements remain to be allocated to B0 or B1.

Currently 2 % (16 of 909) of the Release B L4s have L4-to-RBR trace issues: 0 in CSMS, 1 in SDPS and 15 in the FOS subsystems.

3.3.2 Release B0

RTM Release B0 covers SDPS and CSMS subsystems only.

Prior to this review, 4 % (57 of 1,351) of the Release B0 L4s had L4-to-RBR trace issues. During this review, 46 of these trace issues were verified as resolved and 41 new trace issues were identified.

Currently, 4 % (52 of 1,220) of the Release B0 L4s have L4-to-RBR trace issues: 42 in CSMS and 10 in SDPS.

3.3.3 Release B1

RTM Release B1 covers SDPS and CSMS subsystems only.

Prior to this review, 4 % (27 of 657) of the Release B1 L4s have L4-to-RBR trace issues. During this review, 10 of these trace issues were verified as resolved and 11 new trace issues were identified.

Currently, 3 % (28 of 827) of the Release B1 L4s have L4-to-RBR trace issues: 2 in CSMS and 26 in SDPS.

3.4 Miscellaneous Issues

None.

4. *Recommendations*

The following recommendations are made:

- Complete allocation of RBRs to Releases B0 and B1.
- Correct all Release B, B0 and B1 L3, RBR and L4 trace issues identified in this TAM.
- Immediate action to resolve the Release B RBR Mission Critical trace issues is strongly recommended.

5. *Recommended additional distribution*

None.

6. *Attachments*

- A-1 Summary of Release B RBR Trace Issues.
- A-2 Qualitative Analysis Results for Release B RBRs-to-L4s Trace Issues.
- A-3 Summary of Release B L4 Trace Issues.
- A-4 Qualitative Analysis Results for Release B L4s-to-RBRs Trace Issues.
- B-1 Summary of Release B0 L4 Trace Issues.
- B-2 Qualitative Analysis Results for Release B0 L4s-to-Release B RBRs Trace Issues.
- C-1 Summary of Release B1 L4 Trace Issues.
- C-2 Qualitative Analysis Results for Release B1 L4s-to-Release B RBRs Trace Issues.

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Attachment A-1. Summary of Release B RBR Trace Issues.

| RTM Release B Subsystems | # of RBR Requirements 04/18/97 | # of Open RBR-to-L4 Trace Issues | | # of Open RBR-to-L3 Trace Issues | |
|--------------------------|-----------------------------------|----------------------------------|-----------|----------------------------------|-----------|
| | | 03/14/97 | 04/18/97 | 03/14/97 | 04/18/97 |
| EOSD | 126 | 2 | 6 | 1 | 1 |
| SDPS | | | | | |
| SDPS | 29 | 0 | 1 | 0 | 0 |
| DADS | 194 | 10 | 5 | 0 | 1 |
| PGS | 104 | 8 | 7 | 1 | 1 |
| IMS | 189 | 13 | 13 | 0 | 0 |
| CSMS | | | | | |
| ESN | 59 | 2 | 5 | 0 | 0 |
| SMC | 145 | 7 | 4 | 0 | 0 |
| FOS | | | | | |
| FOS | 14 | 8 | 8 | 8 | 8 |
| EOC | 173 | 16 | 15 | 1 | 1 |
| ICC | 171 | 30 | 33 | 0 | 0 |
| TOTAL RBRs | 1,204 | 96 | 97 | 11 | 12 |

Attachment A-2. Qualitative Analysis Results for Release B RBRs-to-L4s Trace Issues.

| Release B RBR Req. ID/ Mission Criticality | RBR Description | 03/14/97 Trace Issues & Severity | 04/18/97 Status of Trace Issues | Remarks (04/18/97) |
|--|---|--------------------------------------|---------------------------------|---|
| DADS2070#B MC | Each DADS shall interact with EDOS, SDPF, and SMC to resolve schedule conflicts. | New Issue | No Valid Trace. Major Issue. | No L4 Trace. |
| DADS2270#B MC | Each DADS shall provide, on a scheduled basis, an off-site backup copy of all EOS data which would be impossible or difficult to recover in case of loss (e.g., ancillary data, metadata, command history, algorithms, engineering data, calibration data, systems and applications software, selected data products, depending on need). | Incomplete Trace. Major Issue. | Issue Un-Resolved. | The L4 trace, S-DSS-80250, specifies only 2% off-site backup of EOS data, versus all EOS data that would be impossible or difficult to recover in case of loss. |
| EOC-2010#B MC | The EOC shall accept from the FDF planning and scheduling information for the EOS spacecraft and instruments, which includes, at a minimum, the following: a. Predicted orbit data including predicted ground track b. EOS spacecraft UAV data c. PSATs d. Spacecraft maneuver information B: Enhanced Functionality Provided. | Incomplete Trace. Moderate Issue. | Issue Un-Resolved. | No L4 trace to receive from the FDF planning and scheduling information, predicted orbit data, EOS spacecraft UAV data, PSATS data and S/C maneuver data. |
| EOC-2160#B MC | The EOC shall provide plans and schedules to the IMS. | No Valid Trace. Major Issue. | Issue Un-Resolved. | No L4 trace. |
| EOC-2200#B | The EOC shall plan and schedule the management of spacecraft resources that include, at a minimum, | Incomplete Trace. | Issue Un-Resolved. | No L4 trace for RBR items c and d. |

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|---|---|---|--|---|
| MC | the following: a. Spacecraft recorder b. Communications subsystems c. Thermal and power subsystems d. SCC-stored command table. | Moderate Issue. | | |
| EOC-2230#B MC | If conflicts cannot be resolved in EOS planning and scheduling, the EOC shall make a choice between competing activities based on negotiations with and between the ICCs or on a decision by the Project Scientist or his designee. | Incomplete Trace. Moderate Issue. | Issue Un-Resolved. | No L4 trace to view or resolve conflicts. |
| EOC-2240#B MC | The EOC shall reintroduce applicable requested activities in its planning and scheduling function when the activity did not occur due to a deviation from the schedule. | No Valid Trace. Major Issue. | Issue Un-Resolved. | No L4 trace. |
| EOC-2410#B MC | The EOC shall accept from the NCC notification of rejection along with the reason for rejection, when all or a portion of the TDRSS schedule request cannot be accommodated. | Incomplete Trace. Moderate Issue. | Issue Un-Resolved. | No L4 trace to receive notification of rejection and the reason. |
| EOC-2420#B MC | In response to the rejection of a TDRSS schedule request, the EOC shall have the capability to modify the request for resubmission to the NCC. | Incomplete Trace. Moderate Issue. | Issue Un-Resolved. | No L4 trace to resubmit TDRSS schedule rejections. |
| EOC-2530#B MC | If the request to the NCC for additional SN services is denied, the EOC shall regenerate or modify a detailed activity schedule to account for the TDRSS service availability constraints. | Incomplete Trace. Moderate Issue. | Issue Un-Resolved. | No L4 trace to notify user that SN services are denied and a modified schedule must be resubmitted. |
| EOC-3238#B MC | Within 1 minute of detecting a predefined Emergency contingency situation, the EOC shall prepare spacecraft and instrument commands for transmission to EDOS. | No Valid Trace. Major Issue. | Issue Un-Resolved. | No L4 trace. |
| EOC-5180#B MC | The EOC shall provide the capability to extract specified subsets of the telemetry stream. | No Valid Trace. Major Issue. | Issue Un-Resolved. | No L4 trace. |
| EOC-6020#B MC | The EOC shall accept instrument status data from each ICC. | Incomplete Trace. Major Issue. | Issue Un-Resolved. | No L4 trace to provide instrument status. |
| EOC-6070#B MC | The EOC shall provide the capability to time-correlate related spacecraft parameters. | New Issue. | Incomplete Trace. Moderate Issue. | Suggest: F-ANA-03060, -03100, -03110, -03120, -03125. |
| EOC-6140#B MC | The EOC shall provide the capability to maintain a record of the spacecraft and instrument configuration, including the state of all spacecraft subsystems and instruments. | Incomplete Trace. Moderate Issue. | Issue Un-Resolved. | No L4 trace to maintain a s/c configuration record. |
| EOC-6150#B MC | The EOC shall provide the capability to maintain a master ground image of the SCC spacecraft memory. | New Issue. | Incomplete Trace. Moderate Issue. | Suggest: F-CMS-00530. |
| EOC-8220#B MC | The EOC shall manage its faults including at a minimum the following: a. Fault identification and reporting b. Identification of recommended solutions c. Log of fault activities through resolution | No Valid Trace. Major Issue. | Issue Un-Resolved. | No L4 trace. |

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|---|---|--|--|--|
| EOC-8240#B MC | The EOC shall be capable of initiating diagnostics to aid in isolating internal faults, using safeguards to prevent their operations from affecting other operations. | No Valid Trace. Major Issue. | Issue Un-Resolved. | No L4 trace. |
| EOSD1000#B MC | ECS elements shall contribute a loop delay of not greater than 2.5 seconds of the total system delay of five (5) seconds for emergency real-time commands, not including the time needed for command execution. The loop delay is measured from the originator to the spacecraft/instrument and back and only applied when a Tracking and Data Relay Satellite (TDRSS) link is available for contact to the spacecraft. | Incomplete Trace. Moderate issue. | Issue Un-Resolved. | L4 indicates a total system delay of six (6) sec rather than five (5) sec. Also, the L4 traces do not account for the 2.5 seconds of loop delay. |
| EOSD1015#B MC | The DADS at each DAAC that receives instrument level 0 data from EDOS shall provide the capability to input and archive the data at a rate that is equivalent to 1.2 times the DAAC average level 0 input data. | Incomplete Trace. Moderate Issue. | Issue Un-Resolved. | No L4 trace to archive/store data. Suggest S-DSS-03412, S-INS-00408 and S-INS-00409. |
| ESN-0900#B MC | Errors and events to be detected shall include at least: a. communications software version or configuration errors b. communications hardware errors c. Protocol errors d. performance degradation conditions e. telecommunications errors and failures | New Issue. | Incomplete Trace. Moderate Issue. | No L4 trace to item e. |
| ESN-1170#B MC ESN-1380#B MC | The ESN shall provide necessary translation within supported file transfer and e-mail services. The ESN shall provide countermeasures for the following security threats related to data communications: a. modification of data (i.e., manipulation) while in transit over the network b. disclosure of authentication information c. degradation in network or processing resource | New Issue. | Incomplete Trace. Moderate Issue. | No L4 trace to e-mail services. |

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|---|---|--|------------------------------------|---|
| | c. Instrument anomalies found during instrument monitoring. | | | |
| ICC-0070#B MC | The ICC shall be capable of accommodating instrument team-provided software and/or hardware to perform functions such as: a. Planning b. Scheduling c. Analysis d. Onboard microprocessor management | Incomplete Trace. Moderate Issue. | Issue Un-Resolved. | No L4 trace for RBR items a, c and d. |
| ICC-1130#B MC | In support of a TOO observation, the ICC shall be able to evaluate the corresponding request within 30 minutes. | No Valid Trace. Major Issue. | Issue Un-Resolved. | No L4 trace. |
| ICC-2060#B MC | The ICC shall reintroduce applicable requested activities in its planning and scheduling function when the activity did not occur due to a deviation from the schedule. | No Valid Trace. Major Issue. | Issue Un-Resolved. | No L4 trace. |
| ICC-2110#B MC | The ICC shall be capable of converting PI/TL provided instrument deviation requests into scheduling directives suitable for inclusion in its instrument resource profile. | No Valid Trace. Major Issue. | Issue Un-Resolved. | No L4 trace. |
| ICC-3060#B MC | The ICC shall generate and validate, in less than 1 hour, the instrument loads, SCC-stored instrument commands, and/or SCC-stored instrument tables for 24 hours of operation of its instrument. | Incomplete Trace. Moderate Issue. | Issue Un-Resolved. | No L4 trace to validate commands. Suggest F-CMS-01820. |
| ICC-3070#B MC | In support of a TOO observation or late change, the ICC shall generate and validate the corresponding commands within 25 minutes of receiving an updated detailed activity schedule from the EOC, if the corresponding observation does not impact previously scheduled activities. | Incomplete Trace. Moderate Issue. | Issue Un-Resolved. | a. RBR is for within 25 minutes; L4 (F-CMS-01630) is for under 60 minutes. b. No L4 trace to validate commands: Suggest F-CMS-01820. |
| ICC-3071#B MC | In support of a TOO observation, the ICC shall be capable of generating and validating the corresponding commands within 55 minutes of receiving an updated detailed activity schedule from the EOC, if the corresponding observation impacts previously scheduled activities. | Incomplete Trace. Moderate Issue. | Issue Un-Resolved. | a. RBR is for within 55 minutes; L4 (F-CMS-01630) is for under 60 minutes. b. No L4 trace to validate commands: Suggest F-CMS-01820. |
| ICC-3085#B MC | In support of a late change, the ICC shall be capable of generating and validating the corresponding commands within 115 minutes of receiving an updated detailed activity schedule from the EOC, if the corresponding activity impacts previously scheduled activities. | Incomplete Trace. Moderate Issue. | Issue Un-Resolved. | No L4 trace to validate commands. Suggest F-CMS-01820. |
| ICC-4050#B MC | The ICC shall be capable of extracting instrument engineering data from instrument science data. | No Valid Trace. Major Issue. | Issue Un-Resolved. | No L4 trace. |
| ICC-4060#B | The ICC shall support all EOS telemetry formats for instrument engineering data. | No Valid Trace. | Issue Un-Resolved. | No L4 trace. |

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|---|--|---|------------------------------------|---|
| MC | | Major Issue. | | |
| ICC-4130#B MC | The ICC shall have the capability to continuously process instrument housekeeping and engineering data in real time as it is being received. | No Valid Trace. Major Issue. | Issue Un-Resolved. | No L4 trace. |
| ICC-4440#B MC | The ICC shall provide the capability to determine, for specified parameters over a specified time interval, at a minimum the following: a. Minimum value b. Maximum value c. Mean value d. Standard deviation of the parameter e. Time and duration of limit violations | Incomplete Trace. Moderate Issue. | Issue Un-Resolved. | No L4 trace to provide the RBR functionality. |
| ICC-4545#B MC | The ICC shall have the capability to recommend instrument reconfigurations. | Incomplete Trace. Moderate traces. | Issue Un-Resolved. | No L4 trace to recommend instrument reconfiguration. |
| ICC-4550#B MC | The ICC shall have the capability to compare and display selected instrument telemetry parameter values with the expected values based on, at a minimum the following: a. Scheduled instrument operational mode b. Trend analysis c. Instrument-specific telemetry information in the IDB | No Valid Trace. Major Issue. | Issue Un-Resolved. | No L4 trace. |
| ICC-4600#B MC | The ICC shall accept from the IST at a minimum the following: a. Instrument anomaly notifications and instructions b. PI/TL analysis results c. Calibration information d. Performance data. | Incomplete Trace. Moderate Issue. | Issue Un-Resolved. | No L4 trace to items a through c. |
| ICC-6040#B MC | The ICC shall support reconfiguration to work around ICC faults and anomalies without interrupting other ongoing operations. | Incomplete Trace. Moderate Issue. | Issue Un-Resolved. | No L4 trace to reconfigure "without interrupting other ongoing operations". |
| ICC-6070#B MC | The ICC shall manage initialization and shutdown of ICC functions. | No Valid Trace. Major Issue. | Issue Un-Resolved. | No L4 trace. |
| ICC-6110#B MC | The ICC shall manage its faults, including at a minimum the following: a. Fault identification b. Identification of recommended solutions c. Log of fault activities through resolution | No Valid Trace. Major Issue. | Issue Un-Resolved. | No L4 trace. |
| ICC-6130#B MC | The ICC shall be capable of initiating diagnostics to aid in isolating internal faults, using safeguards to prevent their operations from affecting other operations. | No Valid Trace. Major Issue. | Issue Un-Resolved. | No L4 trace. |
| IMS-1261#B MC | The IMS shall provide the capability to forward data acquisition requests to the ASTER GDS, in accordance with applicable IRDs and ICDs. | No Valid Trace Major Issue | Issue Un-Resolved. | No L4 Trace |
| IMS-1262#B | The IMS shall provide the capability to request and receive the ASTER GDS data acquisition request status in accordance with applicable IRDs and ICDs | No Valid Trace Major Issue | Issue Un-Resolved. | No L4 Trace |

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|---|---|--|--|---|
| MC | and provide the status to the data acquisition requester. | | | |
| SMC-2105#B MC | The LSM shall convey ground operations (i.e., non-instrument related) events to sites or elements for implementation. Ground operations events include, at a minimum, actions associated with: a. Configuring element resources b. Fault recovery c. Security d. Maintenance e. Testing f. Simulations g. Logistics h. Training classes i. Accounting and accountability j. General requests for information | Incomplete Trace. Major Issue. | Issue Un-Resolved. | No L4 to "convey ground operations ... events to sites or elements for implementation". |
| SMC-3350#B MC | The SMC shall generate, maintain, and update performance criteria and responses to performance deficiencies for system, site, and element resources and activities, such as: a. Data collection b. Product generation, QA and validation c. Reprocessing d. Data delivery to DAACs and to users e. Response to user requests f. Response to TOOs g. Response to field experiments h. Response to emergency situations | New Issue. | Incomplete Trace. Moderate Issue. | No L4 trace for the capability to receive processing utilization status from the INS. |
| DADS1475#B ME | Each DADS shall provide tools to the users to perform: a. Format conversion of EOS data b. Subsetting c. Compression (lossy, lossless) d. Data transformation e. Subsampling B: Format conversion, subsampling, subsetting, and transformation | Incomplete Trace. Moderate Issue. | Issue Un-Resolved. | No L4 trace for RBR sub-items a and d. Suggest S-INS-00402 for a. |
| DADS1970#B ME | Each DADS shall access from the SMC, via the system database, the product thread information for each standard product generated by EOSDIS. | New Issue. | No Valid Trace. Major Issue | No L4 Trace. |
| DADS2065#B ME | The DADS shall receive production and expedited science and engineering data from EDOS in a data driven mode. | No Valid Trace. Major Issue. | Issue Un-Resolved. | No L4 Trace. |
| EOC-9580#B ME | The EOC shall be capable of growing to support additional spacecraft without major redesign. B: AM - 1 only. | No Valid Trace. Major Issue. | Issue Un-Resolved. | L4 trace provided to Release C only. Provide L4 trace to Release B, B0 or B1. |
| EOSD2640#B ME | ECS elements shall relinquish a connection between the element and a user when the user has not been active for a configurable period of time. | New Issue. | No Valid Trace. Major Issue. | No L4 Trace. |
| EOSD3220#B | All media shall be handled and stored in protected | New Issue. | No Valid Trace. | No L4 Trace. |

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|---|---|--|--|--|
| ME | areas with environmental and accounting procedures applied. | | Major Issue. | |
| ESN-0815#B ME | Network simulation and traffic modeling capability shall be provided to troubleshoot network problems and to use in network planning. | Incomplete Trace. Moderate Issue. | Issue Un-Resolved. | No L4 trace for network simulation and traffic modeling capability. |
| ESN-1000#B ME | The ESN network management function shall have the capability to build histories for different types of errors and events, and the capability to analyze errors and recommend corrective action wherever practical. | Incomplete Trace. Moderate Issue. | Issue Un-Resolved. | No L4 trace for "recommend corrective action wherever practical". |
| FOS-1040#B ME | The FOS shall provide the ability to incorporate AM-1 backup Ground Station schedule and view period information into the system. | No Valid Trace. Major Issue. | Issue Un-Resolved. | No L4 trace. |
| FOS-1060#B ME | The FOS shall provide spacecraft contact schedules to EDOS. | No Valid Trace. Major Issue. | Issue Un-Resolved. | No L4 trace. |
| FOS-1070#B ME | The FOS shall receive, process, and display EOSDIS Ground Station RF Terminal status information from EDOS. | No Valid Trace. Major Issue. | Issue Un-Resolved. | No L4 trace. |
| FOS-1080#B ME | The FOS shall receive, process, and display EOSDIS Ground Station RF Terminal status information from EDOS. | No Valid Trace. Major Issue. | Issue Un-Resolved. | No L4 trace. |
| FOS-1090#B ME | The FOS shall receive, process, and display spacecraft contract summary reports from EDOS. | No Valid Trace. Major Issue. | Issue Un-Resolved. | No L4 trace. |
| ICC-0040#B ME | The ICC shall receive the LTSP and LTIP from the SMC. | No Valid Trace. Major Issue. | Issue Un-Resolved. | No L4 trace. |
| ICC-0050#B ME | An ICC shall have the capability to interface with other ICCs both electronically and by voice to facilitate, at a minimum, the following: a. Planning of coordinated operations b. Resolution of conflicts. c. Exchange of instrument status. | Incomplete Trace. Moderate Issue. | Issue Un-Resolved. | No L4 trace to interface by voice. |
| ICC-3240#B ME | The ICC shall generate and validate a pre-planned instrument command in response to an instrument command request from the PI/TL at the IST. | Incomplete Trace. Moderate Issue. | Issue Un-Resolved. | No L4 trace to validate commands. Suggest F-CMS-01820. |
| ICC-3380#B ME | The ICC shall accept from the EOC instrument uplink status, which includes at a minimum the following: a. Receipt at the EOC b. Validation status as determined by the EOC c. Receipt at the spacecraft | New Issue. | Incomplete Trace. Moderate Issue. | L4 addresses only success or failure. RBR items a and c are not addressed. |
| ICC-4210#B ME | The ICC shall be capable of extracting instrument engineering data from instrument science data at science data rates up to 1.544 Mbps. | No Valid Trace. Major Issue. | Issue Un-Resolved. | No L4 trace. |
| ICC-4610#B ME | Upon request from the PI/TL, the ICC shall provide the IST with at a minimum the following: a. Instrument performance assessment data | No Valid Trace. Major Issue. | Issue Un-Resolved. | No L4 trace. |
| ICC-6080#B | The ICC shall provide the capability to analyze and | Incomplete Trace. | Issue Un-Resolved. | No L4 trace to |

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| Release B RBR Req. ID/ Mission Criticality | RBR Description | 03/14/97 Trace Issues & Severity | 04/18/97 Status of Trace Issues | Remarks (04/18/97) |
|---|--|---|--|--|
| ME | report its internal performance at a minimum for the following: a. CPU utilization b. Processing throughput for plans and schedules, and commands c. Equipment downtime d. Mass storage utilization e. Communication resource utilization f. Data accounting | Moderate Issue. | | analyze and report internal performance for RBR sub-items a through f. |
| ICC-6200#B ME | The ICC shall provide capabilities to generate at a minimum the following: a. Security audit log b. ICC resource utilization report c. ICC status report d. ICC hardware/software configuration history | No Valid Trace. Major Issue. | Issue Un-Resolved. | No L4 trace. |
| ICC-6205#B ME | The ICC status report shall include at a minimum the following: a. Compliance with LTIP b. Anomaly reports c. Maintenance reports | No Valid Trace. Major Issue. | Issue Un-Resolved. | No L4 trace. |
| ICC-6210#B ME | The ICC shall provide the SMC and the EOC with access to ICC reports. | No Valid Trace. Major Issue. | Issue Un-Resolved. | No L4 trace. |
| ICC-7010#B ME | The IST shall have the capability to accept from the ICC and display, in parallel with any current activities in the IST, a notification regarding at a minimum the following: a. Conflicts found in planning and scheduling b. Arrival of instrument engineering data c. Instrument anomalies found during instrument monitoring | New Issue. | Incomplete Trace. Moderate Issue. | RBR item b is not addressed in L4s. Suggest F-FUI-02240. |
| ICC-7400#B ME | In support of a TOO observation or a late change, the IST shall provide the corresponding command request to the ICC within 10 minutes of receiving information notification. | New Issue. | Incomplete Trace. Moderate Issue. | The 10 minute RBR requirement is not addressed by the L4. |
| ICC-8020#B ME | The ICC computer hardware shall be able to grow without redesign to twice the processing, storage, and communications capacities estimated for full system operation. | New Issue. | Incomplete Trace. Moderate Issue. | Given L4 F-FOS-00230 does not apply to this RBR. |
| IMS-0705#B ME | The IMS shall provide the capability to request a subset (i.e. scene) of a Landsat 7 subinterval identified by: a. WRS b. Geographic location (x, z) spatial with rectangular boundaries c. Spectral Band d. Time | Incomplete Trace. Moderate Issue. | Issue Un-Resolved. | Appendix F-Data Type Matrix of 304-CD-005 does not include Landsat 7 data. |
| IMS-0820#B ME | The IMS shall provide to the user product order status information from the DADS to confirm or reject an order, which contains the following information at a minimum: a. Requester identification b. Request identification | Incomplete Trace. Moderate Issue. | Issue Un-Resolved. | No L4 trace to RBR sub-item e. Suggest S-CLS-11150. |

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| Release B RBR Req. ID/ Mission Criticality | RBR Description | 03/14/97 Trace Issues & Severity | 04/18/97 Status of Trace Issues | Remarks (04/18/97) |
|---|--|--|-------------------------------------|---|
| | c. Request status d. If rejection, then the reason for the rejection e. If delayed longer than latest completion time specified by user, adjusted start and completion times | | | |
| IMS-0840#B ME | The IMS shall provide the capability to receive data order status from the DADS when the ordered data has been shipped to the user. | New Issue. | No Valid Trace. Major Issue. | No L4 trace. |
| IMS-0860#B ME | The IMS shall provide an interface to ADC and ODC data systems and archives that produce, process, and/or maintain Earth science data sets and that have agreed to make the information and services available to ECS. B: NOAA, CIESIN | Incomplete Trace. Major Issue. | Issue Un-Resolved. | No L4 trace to CIESIN datasets. |
| IMS-0950#B ME | The IMS shall accept from the originator changes to existing standing orders for data to be processed by the PGS. | Incomplete Trace. Moderate Issue. | Issue Un-Resolved. | L4 traces refer to on-demand processing. No L4 trace to accept changes to the existing standing orders. |
| IMS-0970#B ME | The IMS shall determine if requested data products already exist and can be retrieved. | Incomplete Trace. Moderate Issue. | Issue Un-Resolved. | No L4 trace for the RBR functionality. |
| IMS-1105#B ME | The IMS shall maintain or provide access to climatology databases for DAR generation. | No Valid Trace. Major Issue. | Issue Un-Resolved. | No L4 trace. |
| IMS-1290#B ME | The IMS shall send a product order to an ADC or an ODC with the identification of the destination DADS and suggested shipping deadline for data required for product processing. | Incomplete Trace. Moderate Issue. | Issue Un-Resolved. | No L4 trace to send product orders to ADC/ODC. |
| IMS-1420#B ME | The Virtual IMS Information Management software shall provide the capabilities to search the local SCF data base. | Incomplete Trace. Moderate Issue. | Issue Un-Resolved. | No L4 trace to search the local SCF database. |
| IMS-1450#B ME | The Virtual IMS Information Management tools shall provide the capability to modify the data base structure while adhering to established standards. | Incomplete Trace. Moderate Issue. | Issue Un-Resolved. | No L4 trace to modify the data base structure. |
| IMS-1540#B ME | The IMS toolkit software shall provide the capability to generate, at a minimum: a. Two-dimensional plots (x-y plots, scatter plots, profiles, histograms) b. Three-dimensional plots c. Contour plots d. Three-dimensional surface diagrams | Incomplete Trace. Moderate Issue. | Issue Un-Resolved. | No L4 trace to 3 dimensional plots and 3 dimensional surface diagrams. |
| PGS-0490#B ME | The PGS shall have the capability to access and use, for the generation of Standard Products, information such as: a. Digital terrain map databases b. Land/sea databases c. Climatology databases d. Digital political map databases | Incomplete Trace. Moderate Issue. | Issue Un-Resolved. | No L4 trace to RBR sub-item c. |
| PGS-0500#B | The PGS shall have the capability to generate Level | Incomplete Trace. | Issue Un-Resolved. | No L4 trace to |

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| Release B RBR Req. ID/ Mission Criticality | RBR Description | 03/14/97 Trace Issues & Severity | 04/18/97 Status of Trace Issues | Remarks (04/18/97) |
|---|---|---|--|--|
| ME | 1 through 4 Standard Products using validated algorithms and calibration coefficients provided by the scientists. | Moderate Issue. | | generate L1-to-L4 standard products. |
| PGS-0590#B ME | The PGS shall have the capability to indicate the temporary status of data stored in the DADS that is awaiting QA or human interaction in product production. | No Valid Trace. Major Issue. | Issue Un-Resolved. | No L4 Trace. |
| PGS-1160#B ME | The PGS shall have the capability to accept from the product quality staff commands to suspend specified production processing due to inferior quality or other reasons in line with SMC guidelines. The reasons for all such actions shall also be specified. | Incomplete Trace. Moderate Issue. | Issue Un-Resolved. | No L4 trace to reasons for suspending the specified production processing. |
| PGS-1180#B ME | The PGS shall have the capability to update the processing status of a given product as a result of a QA timeout. | No Valid Trace. Major Issue. | Issue Un-Resolved. | No L4 Trace. |
| PGS-1220#B ME | The PGS shall have the capability to receive GFE databases and associated tools, including COTS and public domain databases, and maintain them as required as inputs to product generation: Example databases are: a. Digital terrain map databases b. Land/sea databases c. Climatology databases d. Digital political map databases | Incomplete Trace. Moderate Issue. | Issue Un-Resolved. | No L4 trace to receive RBR sub-item c. |
| SMC-2530#B ME | Upon approval of a system enhancement, the SMC shall provide overall management of the implementation of the approved changes to the hardware and system software. | New Issue. | Incomplete Trace. Moderate Issue. | L4s do not address hardware. |
| SMC-8705#B ME | The LSM shall have the capability to generate the same types of reports listed under the SMC report generation service, except that each report shall cover only its particular site or its particular element. | New Issue. | Incomplete Trace. Moderate Issue. | Recommend adding C-MSS-92600 to "match" SMC-8700#B. |
| SDPS0085#B ME | The SDPS shall support data products transitioned from V0 at a level of service equal to or greater than the level of service provided for those same data products by V0. The levels of service are defined in Appendix C of the ESDIS Project Level 2 Requirements, Volume 5 EOSDIS Version 0. | New Issue. | No Valid Trace. Major Issue. | No L4 Trace. |
| EOSD3510#B MF | Reliability predictions shall be calculated in accordance with the parts count analysis method, Appendix A, of MIL-HDBK-217F, Reliability Prediction of Electronics Equipment. | New Issue. | No Valid Trace. Major Issue. | No L4 Trace. |
| EOSD3600#B MF | Maintainability shall be predicted in accordance with MIL-HDBK-472 Maintainability Prediction, Procedure IV. | New Issue. | No Valid Trace. Major Issue. | No L4 Trace. |
| PGS-0295#B MF | The PGS shall transmit a status message notifying the IMS of a revised completion time if processing will not be complete per original schedule | No Valid Trace. Major Issue. | Issue Un-Resolved. | No L4 trace. |

Attachment A-3. Summary of Release B L4 Trace Issues.

| RTM Release B Subsystem | # of L4 Requirements 03/14/97 | # of Open L4 Trace Issues | |
|-------------------------|-------------------------------|---------------------------|-----------|
| | | 03/14/97 | 04/18/97 |
| SDPS | | | |
| S-CLS | 0 | 0 | 0 |
| S-DMS | 3 | 0 | 0 |
| S-DPS | 1 | 0 | 0 |
| S-DSS | 0 | 1 | 1 |
| S-INS | 0 | 0 | 0 |
| S-IOS | 0 | 0 | 0 |
| S-PLS | 1 | 0 | 0 |
| CSMS | | | |
| C-CSS | 0 | 0 | 0 |
| C-HRD | 0 | 1 | 0 |
| C-ISS | 8 | 0 | 0 |
| C-MSS | 0 | 0 | 0 |
| FOS | | | |
| F-ANA | 126 | 0 | 0 |
| F-CMD | 59 | 0 | 1 |
| F-CMS | 100 | 0 | 1 |
| F-DMS | 57 | 0 | 0 |
| F-HRD | 14 | 11 | 11 |
| F-FOS | 68 | 1 | 1 |
| F-FUI | 247 | 0 | 0 |
| F-PAS | 98 | 0 | 0 |
| F-RMS | 35 | 0 | 0 |
| F-TLM | 92 | 0 | 1 |
| TOTALS | 909 | 14 | 16 |

Attachment A-4. Qualitative Analysis Results for Release B L4s-to-RBRs Trace Issues.

| Release B L4 Req. ID | Requirement Description | 03/14/97 Trace Issues & Severity | 04/18/97 Status of Trace Issues | Remarks (04/18/97) |
|----------------------|--|--|--|---|
| F-CMS-01630 | In support of a late change, the EOC shall process all loads associated with the change in less than 1 hour after receiving the updated DAS. The processing of loads associated with the change shall include: | New Issue. | Incomplete Trace. Moderate Issue. | L4 has a 1 hour requirement; traced RBRs (EOC-3226#B, ICC-3070#B and ICC-3071#B) have less than an hour requirements. |
| F-CMD-02265 | The EOC shall permit the user to override the range check of submnemonic values when the values fail the range check. | New Issue. | Duplicate Trace. Minor Issue. | Both L4 traces are the same requirement. |
| F-FOS-00200 | The ECS shall contribute a loop delay of not greater than 2.5 seconds of the total system delay of six (6) seconds for emergency real-time commands, not including the time needed for command execution. | Incomplete Trace. Moderate Issue. | Issue Un-Resolved. | AM1-1150#B, EOSD1000#B and NI-1060#B say "five (5) seconds for emergency real-time commands". |
| F-HRD-00005 | Each Real-Time Server shall be physically and functionally identical in supporting the FOS processing requirements. | No Valid Trace. Major Issue. | Issue Un-Resolved. | No RBR trace. |
| F-HRD-03015 | The RAID storage should provide a minimum of 40 usable gigabytes. | No Valid Trace. Major Issue. | Issue Un-Resolved. | No RBR trace. |

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| Release B L4 Req. ID | Requirement Description | 03/14/97 Trace Issues & Severity | 04/18/97 Status of Trace Issues | Remarks (04/18/97) |
|-------------------------|---|--------------------------------------|------------------------------------|---|
| F-HRD-04005 | There shall be a minimum of five system printers located at the EOC. | No Valid Trace. Major Issue. | Issue Un-Resolved. | No RBR trace. |
| F-HRD-04010 | The system printers shall be physically and functionally identical in supporting the FOS printing requirement. | No Valid Trace. Major Issue. | Issue Un-Resolved. | No RBR trace. |
| F-HRD-04020 | There shall be a minimum of two logging printers located at the EOC. | No Valid Trace. Major Issue. | Issue Un-Resolved. | No RBR trace. |
| F-HRD-05020 | There shall be a minimum of two time code displays located at the EOC. | No Valid Trace. Major Issue. | Issue Un-Resolved. | No RBR trace. |
| F-HRD-05025 | There shall be at least one up counter, down counter and universal time code display in the EOC. | No Valid Trace. Major Issue. | Issue Un-Resolved. | No RBR trace. |
| F-HRD-06015 | Test equipment to be provided include: a. One communications line monitor to store and display up to 10,000 bytes of data sent and received over any of the communications lines at rates of 10MB/ sec, and supporting the protocols used by FOS. b. One Metallic Cable Time Domain Reflectometer c. One digital VOM/multimeter d. One Local Area Network analyzer. | No Valid Trace. Major Issue. | Issue Un-Resolved. | No RBR trace. |
| F-HRD-07005 | The EOC shall provide (for AM-1) three (3) Real-Time Servers configured with: a. Six Fixed Disks (two per Real-Time Server) b. Three Tape Drives (one per Real-Time Server) c. Three CD-ROM Drives (one per Real-Time Server) d. Three operator consoles (one per Real-Time Server) e. Three System Printers (one per Real-Time Server) f. Three Timing Interfaces (one per Real-Time Server) | No Valid Trace. Major Issue. | Issue Un-Resolved. | No RBR trace. |
| F-HRD-07010 | The EOC shall provide (36) User Stations, which can perform any EOC subsystem function. | No Valid Trace. Major Issue. | Issue Un-Resolved. | No RBR trace. |
| F-HRD-07015 | The EOC shall provide three (3) Data Servers configured with: a. Six Fixed Disks (two/Data Server) b. Three Tape Drives (one/Data Server) c. Three CD-ROM Drivers (one per Data Server) d. Three operator consoles (one per Data Server) | No Valid Trace. Major Issue. | Issue Un-Resolved. | No RBR trace. |
| F-TLM-00440 | The FOS shall extract from the telemetry packet primary header field the following: a. The 11-bit packet APID. b. The 14-bit packet sequence count. c. The two (2) octet packet length count. | New Issue. | Duplicate Trace. Minor Issue. | Duplicates L4: F-TLM-10440. |
| S-DSS-01970 | The SDSRV CI shall have the capability to accept a daily average of (2) per cent of the daily data throughput as expedited data for use in mission functions of calibration and | Incomplete Trace. Moderate Issue. | Issue Un-Resolved. | EOSD1030#B has a trace to this L4; but this L4 has no Release ID, e.g., B0. |

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| Release B L4 Req. ID | Requirement Description | 03/14/97 Trace Issues & Severity | 04/18/97 Status of Trace Issues | Remarks (04/18/97) |
|-------------------------|-------------------------|-------------------------------------|------------------------------------|-----------------------|
| | anomalies. | | | |

Attachment B-1. Summary of Release B0 L4 Trace Issues.

| RTM Release B0 Subsystem | # of L4 Requirements 04/18/97 | # of Open L4 Trace Issues | |
|--------------------------|-------------------------------|---------------------------|----------|
| | | 03/14/97 | 04/18/97 |
| SDPS | | | |
| S-CLS | 240 | 4 | 5 |
| S-DMS | 139 | 3 | 4 |
| S-DPS | 56 | 2 | 0 |
| S-DSS | 139 | 0 | 0 |
| S-INS | 73 | 0 | 1 |
| S-IOS | 15 | 0 | 0 |
| S-PLS | 21 | 0 | 0 |
| CSMS | | | |
| C-CSS | 119 | 26 | 39 |

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| Release B0 L4 Req. ID | Requirement Description | 03/14/97 Rel B Trace Issues & Severity | 04/18/97 Status Trace Issues | Remarks (04/18/97) |
|--------------------------|--|---|-------------------------------------|-----------------------|
| C-CSS-30260 | The SRF shall support the use of application defined status messages that may be posted by the server to inform the client of request progress. | New Issue. | No Valid Trace. Major Issue. | No RBR trace. |
| C-CSS-30270 | The SRF shall support the use of application defined result messages that are used to communicate the results of a request back to the client. | New Issue. | No Valid Trace. Major Issue. | No RBR trace. |
| C-CSS-30280 | The SRF shall support callback functions for statuses. | New Issue. | No Valid Trace. Major Issue. | No RBR trace. |
| C-CSS-30290 | The SRF shall support callback functions for request completion. | New Issue. | No Valid Trace. Major Issue. | No RBR trace. |
| C-CSS-30300 | The SRF shall allow a client to send a Suspend request signal to the server on a per request basis. | New Issue. | No Valid Trace. Major Issue. | No RBR trace. |
| C-CSS-30310 | The SRF shall allow a client to send a Suspend request signal to the server on a per request basis. | New Issue. | No Valid Trace. Major Issue. | No RBR trace. |
| C-CSS-30320 | The SRF shall allow an executing request to block waiting on a Resume signal. | New Issue. | No Valid Trace. Major Issue. | No RBR trace. |
| C-CSS-30330 | The SRF shall support the explicit acknowledgment by the server application back to the client of a request. | New Issue. | No Valid Trace. Major Issue. | No RBR trace. |
| C-CSS-30340 | The SRF shall support a time-out on an explicit request acknowledgment. | New Issue. | No Valid Trace. Major Issue. | No RBR trace. |
| C-CSS-30350 | The SRF shall support automatic request restart on a per operation basis. | New Issue. | No Valid Trace. Major Issue. | No RBR trace. |
| C-CSS-30360 | The SRF shall support automatic request restart on a per operation basis. | New Issue. | No Valid Trace. Major Issue. | No RBR trace. |
| C-CSS-30370 | The SRF shall support the ability to obtain a request's current state. (In progress, complete, etc.) | New Issue. | No Valid Trace. Major Issue. | No RBR trace. |
| C-CSS-30380 | The SRF shall allow arbitrary objects to be passed as arguments in requests. | New Issue. | No Valid Trace. Major Issue. | No RBR trace. |
| C-CSS-30390 | The SRF shall allow executing requests to determine if the server is available. | New Issue. | No Valid Trace. Major Issue. | No RBR trace. |
| C-CSS-40270 | The Subscription Service shall accept the following requests from subscribers: submit new subscriptions, update subscriptions, and cancel subscriptions. | New Issue. | No Valid Trace. Major Issue. | No RBR trace. |
| C-CSS-40280 | The Subscription Service shall accept the following requests from event producer: register new events, update events, cancel events, and trigger events. | New Issue. | No Valid Trace. Major Issue. | No RBR trace. |
| C-CSS-40290 | The Subscription Service shall provide the capability to notify via direct program interface when the subscriber specified action has been taken. | New Issue. | No Valid Trace. Major Issue. | No RBR trace. |

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| Release B0 L4 Req. ID | Requirement Description | 03/14/97 Rel B Trace Issues & Severity | 04/18/97 Status Trace Issues | Remarks (04/18/97) |
|--------------------------|---|---|-------------------------------------|-----------------------|
| C-CSS-40300 | The Subscription Service shall provide the capability to notify subscriber via email upon occurrence of the event if no action has been specified. | New Issue. | No Valid Trace. Major Issue. | No RBR trace. |
| C-CSS-40310 | The Subscription Service shall provide the capability to notify directly to a program interface upon occurrence of the event if no action has been specified. | New Issue. | No Valid Trace. Major Issue. | No RBR trace. |
| C-CSS-40320 | The Subscription Service shall allow subscriber to specify the day of week to be notified for weekly time interval events. | New Issue. | No Valid Trace. Major Issue. | No RBR trace. |
| C-CSS-40330 | The Subscription Service shall all subscriber to specify the day of month to be notified for monthly time interval events. | New Issue. | No Valid Trace. Major Issue. | No RBR trace. |
| C-CSS-40340 | The Subscription Service shall provide the capability for authorized users to delete all stored Subscription of a user. | New Issue. | No Valid Trace. Major Issue. | No RBR trace. |
| C-CSS-40350 | The Subscription Service shall allow events to be triggered asynchronously. | New Issue. | No Valid Trace. Major Issue. | No RBR trace. |
| C-CSS-40360 | The Subscription Service shall provide acknowledgment of receipt of a request after the request is submitted. | New Issue. | No Valid Trace. Major Issue. | No RBR trace. |
| C-CSS-40370 | The Subscription Service shall provide a mechanism to obtain state of the request (pending/in progress/completed). | New Issue. | No Valid Trace. Major Issue. | No RBR trace. |
| C-CSS-40380 | The Subscription Service shall provide a mechanism to obtain the operation status upon completion. (succeeded/failed). | New Issue. | No Valid Trace. Major Issue. | No RBR trace. |
| C-CSS-40390 | The Subscription Service shall provide a mechanism that allows the Subscription Service to be restarted and any requests that were in progress be restarted. | New Issue. | No Valid Trace. Major Issue. | No RBR trace. |
| C-CSS-40400 | The Subscription Service shall allow subscribers to qualify a subscribable event based on a set of attributes specified by the event producer. | New Issue. | No Valid Trace. Major Issue. | No RBR trace. |
| C-CSS-40410 | The Subscription Service shall provide the capability to store subscriptions and event types persistently. | New Issue. | No Valid Trace. Major Issue. | No RBR trace. |
| C-CSS-40420 | The Subscription Service shall validate subscriber's privileges to verify that the subscriber is authorized to perform the request. | New Issue. | No Valid Trace. Major Issue. | No RBR trace. |
| C-MSS-36490 | The Management Agent Service shall have the capability to send resource availability information to the DPS. | No Valid Trace. Major Issue. | Issue Un-Resolved. | No RBR trace. |
| C-MSS-36575 | The Management Agent Service shall have the capability to receive status of data distribution from the DSS. | Incomplete Trace. Moderate Issue. | Issue Un-Resolved. | Suggest DADS1000#B. |
| C-MSS-50200 | The MSS Maintenance Management Service shall provide the capability to generate off-site maintenance reports based on operator entered criteria. | Incomplete Trace. Moderate Issue. | Issue Un-Resolved. | Suggest SMC-8300#B. |
| S-CLS-01740 | The DESKT CI mode-specific | No Valid Trace. | Issue Un-Resolved. | No RBR trace. |

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| Release B0 L4 Req. ID | Requirement Description | 03/14/97 Rel B Trace Issues & Severity | 04/18/97 Status Trace Issues | Remarks (04/18/97) |
|--------------------------|--|---|---------------------------------|--|
| | applications shall be capable of simultaneous execution in different modes on the same machine. | Major Issue. | | |
| S-CLS-11285 | The WKBCH CI shall provide users the capability to create documents in HTML format. | Incomplete Trace. Moderate Issue. | Issue Un-Resolved. | Suggest IMS-0480#B and IMS-0490#B. |
| S-CLS-13400 | The WKBCH CI shall obtain user authentication information from the user. | Incomplete Trace. Moderate Issue. | Issue Un-Resolved. | Suggest IMS-0050#B. |
| S-CLS-13830 | The WKBCH CI shall make ASTER data acquisition schedules and plans accessible to authorized users on request. | New Issue. | No Valid Trace. Major Issue. | No RBR trace. |
| S-CLS-15920 | The Client Visualization Tool shall support display of multiple images. | Incomplete trace. Moderate Issue. | Issue Un-Resolved. | The trace specified is not relevant. Add trace to display multiple images. Suggest IMS-0140#B. |
| S-DMS-11060 | The DIMGR CI shall forward commands to terminate a session to all servers which are a part of that session. | No Valid Trace. Major Issue. | Issue Un-Resolved. | Trace is not relevant. Add RBR trace for the functionality trace. Suggest IMS-0140B. |
| S-DMS-20015 | The DDICT CI shall maintain a mapping between Data Collections and the location of Data Collections in ECS. | New Issue. | No Valid Trace. Major Issue. | No RBR trace. |
| S-DMS-31140 | The GTWAY CI shall have the capability to send Ancillary Data Requests to the NOAA NMC using Version 0 protocols | No Valid Trace. Major Issue. | Issue Un-Resolved. | No RBR trace. |
| S-DMS-31150 | The GTWAY CI shall have the capability to send Product Availability Queries to the NOAA NMC using Version 0 protocols. | No Valid Trace. Major Issue. | Issue Un-Resolved. | No RBR trace. |
| S-INS-00632 | The INGST CI shall ingest data, received on physical media from NESDIS, into the LaRC DAAC. | New Issue. | No Valid Trace. Major Issue. | No RBR trace. |

Attachment C-1. Summary of Release B1 L4 Trace Issues.

| RTM Release B1 Subsystem | # of L4 Requirements 04/18/97 | # of Open L4 Trace Issues | |
|--------------------------|-------------------------------|---------------------------|-----------|
| | | 03/14/97 | 04/18/97 |
| SDPS | | | |
| S-CLS | 145 | 0 | 1 |
| S-DMS | 119 | 1 | 4 |
| S-DPS | 34 | 0 | 1 |
| S-DSS | 229 | 0 | 0 |
| S-INS | 14 | 0 | 4 |
| S-IOS | 9 | 0 | 0 |
| S-PLS | 66 | 17 | 16 |
| CSMS | | | |
| C-CSS | 10 | 0 | 0 |
| C-HRD | 0 | 0 | 0 |
| C-ISS | 16 | 0 | 0 |
| C-MSS | 185 | 9 | 2 |
| TOTALS | 827 | 27 | 28 |

Attachment-C-2. Qualitative Analysis Results for Release B1 L4s-to-Release B RBRs Trace Issues.

| Release B1 L4 Req. ID | Requirement Description | 03/14/97 Rel B Trace Issues & Severity | 04/18/97 Status of Trace Issues | Remarks (04/18/97) |
|-----------------------|---|--|--|---------------------|
| C-MSS-52010 | The MSS Policy and Procedures Management Service at the SMC shall provide the capability to prepare, store, maintain, and make available for distribution ECS policies and procedures. | New Issue. | Incomplete Trace. Moderate Issue. | Suggest SMC-2605#B. |
| C-MSS-79800 | The MSS BAAS Cost Accounting shall provide the capability to assign resource unit costs to serve different users. | New Issue. | Incomplete Trace. Moderate Issue. | Suggest SMC-6385#B. |
| S-CLS-00060 | The WKBCH CI shall provide users with automatic acronym expansion, which can be enabled and disabled interactively. | New Issue. | No Valid Trace. Major Issue. | No RBR trace. |
| S-DMS-20132 | The DDICT CI shall accept search requests in a format compatible with the Earth Science Query Language. | New Issue. | No Valid Trace. Major Issue. | No RBR trace. |
| S-DMS-20134 | The DDICT CI shall accept search requests in a parameter = value format. | New Issue. | No Valid Trace. Major Issue. | No RBR trace. |
| S-DMS-20182 | The DDICT CI shall accept new or updated data dictionary entries from the ADSRV CI. | New Issue. | No Valid Trace. Major Issue. | No RBR trace. |
| S-DMS-31090 | The GTWAY CI shall have the capability to receive Cost Estimate Requests from the NOAA SAAs using Version 0 protocols. | No Valid Trace. Major Issue. | Issue Un-Resolved. | No RBR trace. |
| S-DPS-60385 | The SPRHW CI shall contribute to the generation of Level 4 Standard Products within 1 week after processing is initiated. | New Issue. | No Valid Trace. Major Issue. | No RBR trace. |
| S-INS-00411 | The INGST CI shall extract metadata from ingested data into a form accepted by the Document Data Server, as needed, for the following categories of data: a. Metadata parameters stored by parameter byte order | New Issue. | No Valid Trace. Major Issue. | No RBR trace. |

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|--------------------------|--|--|-------------------------------------|--|
| | and parameter byte length; b. Metadata parameters stored in PVL format; c. Metadata parameters stored in HDF format; d. Database-specific metadata formats. | | | |
| S-INS-00412 | For each data granule specified in an Ingest Request the INGEST CI shall determine by means of an Advertisement the appropriate DDSRV CI in which to store the data granule. | New Issue. | No Valid Trace. Major Issue. | No RBR trace. |
| S-INS-00413 | The INGEST CI shall provide the capability to request storage of a data granule by means of a Data Insert Request to the DDSRV CI associated with the type of the data granule. | New Issue. | No Valid Trace. Major Issue. | No RBR trace. |
| S-INS-03105 | The INGEST CI shall extract metadata from ingested data into a form accepted by the Document Data Server, as needed, for the following categories of data: a. Metadata parameters stored in a data-set-specific format | New Issue. | No Valid Trace. Major Issue. | No RBR trace. |
| S-PLS-00406 | The PLANG CI shall allow the operator to alter the values used to check the metadata fields of input data for Production Requests which require these checks as execution criteria. | No Valid Trace. Major Issue. | Issue Un-Resolved. | No RBR trace. |
| S-PLS-01050 | On Receiving an On-Demand Production Request from Processing for error handling, The PLANG CI shall be capable of replacing the failed DPR in the Processing Queue with the DPR from the On-Demand Production Request. | No Valid Trace. Major Issue. | Issue Un-Resolved. | No RBR trace. |
| S-PLS-01221 | The PLANG CI Shall provide the capability to concurrently handle multiple routine, reprocessing, and on-demand Production Requests using the same PGE and requiring the same input data. | No Valid Trace. Major Issue. | Issue Un-Resolved. | No RBR trace. |
| S-PLS-02060 | The PLANG CI shall be able to account for cross-DAAC data dependencies in the site production plans it generates. | No Valid Trace. Major Issue. | Issue Un-Resolved. | No RBR trace. Suggest SMC-1600#B. |
| S-PLS-02230 | The PLANG CI shall be capable of producing reports that compare the predicted availability of data between the baseline Planning Data Availability Schedules and the current candidate plan. | No Valid Trace. Major Issue. | Issue Un-Resolved. | No RBR trace. |
| S-PLS-02515 | The PLANG CI shall have the capability to alter the order of alternate inputs at production request time. | No Valid Trace. Major Issue. | Issue Un-Resolved. | No RBR trace. |
| S-PLS-02560 | The PLANG CI shall have the capability to request any given tile by a unique tile identification number. | No Valid Trace. Major Issue. | Issue Un-Resolved. | No RBR trace. |
| S-PLS-02580 | The PLANG CI shall have the capability to allow the operator to request, by number or some other unique identifier, all data granules pertaining to a specific orbit of the spacecraft. | No Valid Trace. Major Issue. | Issue Un-Resolved. | No RBR trace. |
| S-PLS-02590 | The PLANG CI shall have the capability to | No Valid Trace. | Issue Un-Resolved. | No RBR trace. |

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|--------------------------|--|--|------------------------------------|-----------------------|
| | group data granules into clusters. | Major Issue. | | |
| S-PLS-02595 | The PLANG CI shall have the capability to prioritize DPR's based on clusters. | No Valid Trace. Major Issue. | Issue Un-Resolved. | No RBR trace. |
| S-PLS-02600 | The PLANG CI shall have the capability to perform processing and reprocessing of DPRs that occur concurrently. | No Valid Trace. Major Issue. | Issue Un-Resolved. | No RBR trace. |
| S-PLS-02610 | The PLANG CI shall have the capability to allow two time deltas to be applied to the output granule start/stop time to create the input start/stop time. | No Valid Trace. Major Issue. | Issue Un-Resolved. | No RBR trace. |
| S-PLS-02630 | The PLANG CI shall have the capability to use information from the database as runtime parameters for a PGE. | No Valid Trace. Major Issue. | Issue Un-Resolved. | No RBR trace. |
| S-PLS-02640 | The PLANG CI shall have the capability to activate different PRs/DPRs based on different instrument modes. | No Valid Trace. Major Issue. | Issue Un-Resolved. | No RBR trace. |
| S-PLS-02650 | The PLANG CI shall have the capability to keep a table of coordinates in order to do tiling. | No Valid Trace. Major Issue. | Issue Un-Resolved. | No RBR trace. |
| S-PLS-02660 | The PLANG CI shall have the capability to create dummy jobs as place holders to reserve resources for on-demand jobs. | No Valid Trace. Major Issue. | Issue Un-Resolved. | No RBR trace. |